Botanical Notations in the 1858 Hancock and 1868 Hansen Rancho Surveys

Species Catalogue and Invasive-Species Baseline Check

v2.2

July 26, 2026

Source material: Field Notes of the Final Survey of the Rancho La Ballona (Henry Hancock, Deputy Surveyor, 1858) and Field Notes of the Rancho Sausal Redondo (compiled survey referencing George Hansen, Deputy Surveyor, 1868)

Executive Summary

This report catalogues every plant reference contained in two nineteenth-century rancho boundary survey field-note transcripts covering the Ballona and Sausal Redondo land grants, and cross-checks the record against eleven plant species presently classified as primary invasive species within the Ballona Wetlands ecosystem, together with iceplant and pickleweed specifically. The surveyors were not botanists; plant references appear only where a tree, shrub, or landscape feature served as a boundary monument or bearing object, not as a systematic vegetation inventory.

Four distinct plant references were identified across the two documents: an alamo or cottonwood tree, a willow tree (cited twice, at two different locations), a stand of sycamore timber, and a stand of prickly pear cactus ("tunas"). A fifth data point, the toponym "Sausal Redondo" itself, derives from the Spanish word for a willow grove or thicket and constitutes independent onomastic evidence of willow dominance at that locale, separate from the field-note tree citation.

Neither iceplant (Carpobrotus edulis) nor pickleweed (Salicornia pacifica) is mentioned in either document. Iceplant's absence is consistent with its documented introduction to California substantially later than these surveys. Pickleweed's absence is attributable to survey methodology rather than to its absence on the ground: pickleweed is a low-growing native halophyte unsuited to use as a bearing object, and its omission here does not constitute evidence that it was not present in the ground the surveyors traversed.

None of the eleven modern invasive plant species reviewed in this report appear anywhere in either transcript, under either their modern common names or documented nineteenth-century vernacular equivalents. This finding accords with the pre-disturbance vegetation baseline already established in this office's prior Ballona historical-baseline work.

I. Scope and Method

This report is limited strictly to the text visible in two primary-source survey field-note transcripts:

- Field Notes of the Final Survey of the Rancho La Ballona, Agustin Machado et al., Confirmee, by Henry Hancock, Deputy Surveyor. Survey commenced July 14, 1858; completed July 19, 1858. (County Surveyor Volume G5, pages 298–314.) [1]
- Field Notes of the Rancho Sausal Redondo, Antonio Ygnacio Abila, Confirmee, compiled from field notes of official surveys per General Land Office instructions dated November 6, 1871; plat attributes the underlying survey to George Hansen, Deputy Surveyor, 1868. (County Surveyor Volume G8, pages 51–62.) [2]

Both documents are boundary-monumentation records, not botanical or ecological surveys. Their purpose was to establish legally defensible rancho boundary lines using durable, sightable bearing objects — large rocks, individual named trees, stream and road crossings — for the benefit of future re-survey. Plant references therefore appear only incidentally, where a tree or plant stand happened to serve this monumentation function. This has a direct bearing on how absence should be read in this report: a plant's absence from the text is evidence only that it was not used as a survey monument, not evidence that it was absent from the landscape.

Each plant reference below is presented with its original nineteenth-century vernacular term, a proposed modern common name, and a probable Latin binomial identification where the surrounding context (habitat, associated species, known regional flora) supports one. Latin identifications below the rank of genus are necessarily probabilistic, since the surveyors recorded no descriptive detail beyond size and general type.

This report applies this office's standard four-category evidentiary status framework (Supported / Not Established / Contested-Unresolved / Insufficient Evidence) to each finding, consistent with the evidentiary conventions used throughout this office's Ballona documentary work.

II. Species Catalogue

The following table lists every plant reference located in the two survey transcripts, in the order in which context permits confident identification. Genus-level identifications are generally well supported by context; species-level identifications are probabilistic estimates based on regional flora and are labeled accordingly in the Evidentiary Status column.

1800s Vernacular	Language	Modern Common Name	Probable Latin Name	Survey Reference / Context	Evidentiary Status
"Alamo" / cottonwood tree	Spanish / English	Fremont Cottonwood (probable)	Populus fremontii (probable)	Rancho La Ballona, Station 36 (survey boundary point; tree noted as no longer standing by 1858)	Supported (genus); Probable (species)
Willow tree	English	Arroyo Willow (probable)	Salix lasiolepis (probable)	Rancho La Ballona, Station 36 (witness tree, 24-inch diameter); Rancho Sausal Redondo, point of beginning (10-inch witness tree)	Supported (genus); Probable (species)
Sycamore timber	English	California Sycamore	Platanus racemosa	Rancho La Ballona, stream crossing near Station 37 ("skirted with sycamore timber")	Supported
"Tunas" (bunch of)	Spanish	Prickly pear cactus	Opuntia spp.	Rancho La Ballona, near Station 37 (stake set 150 links north of the stand)	Supported (genus); Insufficient Evidence (species)
"Sausal" (rancho toponym)	Spanish	Willow grove / thicket (place-name descriptor)	Salix spp.	Rancho Sausal Redondo, cover title and rancho name itself (not a field-note observation)	Supported (toponymic); Not Established (stand location or extent)

Observations on the Catalogue

The cottonwood/alamo entry carries a notable qualifier in the original text: the surveyor located the boundary point at "the place where the alamo or cottonwood tree formerly stood," indicating the tree itself was already gone by the July 1858 survey date. The point had become a remembered location rather than a physically monumented one, which suggests at least one riparian tree had been removed or lost by 1858 — a narrow, specific finding limited to this single boundary point rather than evidence of broader riparian attrition.

The willow and sycamore references, together with the toponym "Sausal Redondo," are consistent with a recognizable willow–cottonwood–sycamore riparian gallery association wherever reliable fresh water was present across this stretch of coastal plain, a pattern consistent with, though not reconstructed solely from, this office's existing hydrology and baseline documentation for the area.

On the toponym itself: "Sausal" is a seseo-influenced orthographic variant (s substituted for z) of the standard Spanish sauzal, "willow grove," formed from sauce ("willow") plus the collective place-suffix -al. This same derivation and spelling variation is independently documented for the related California place name Sausalito (from sauzalito, "small willow grove"), providing an external check on the reading of "Sausal" applied here. [12]

The "tunas" reference is the only non-riparian plant citation in either document, and reflects upland or transitional terrain rather than the creek, bay, and marsh-margin contexts of the other entries.

III. Iceplant and Pickleweed: Specific Findings

Iceplant (Carpobrotus edulis)

No reference to iceplant, under that name or any plausible period equivalent ("ice plant," "mesembryanthemum," "Hottentot fig," or similar succulent descriptor), appears in either transcript. This absence is expected rather than anomalous. Carpobrotus edulis is native to South Africa and is not documented in quantity in coastal Southern California until railroad-embankment and dune-stabilization plantings beginning in approximately the 1890s–1900s, several decades after both surveys. [7, 8] The complete absence of iceplant from this record accords with this office's existing pre-invasion baseline framing.

Pickleweed (Salicornia pacifica)

No reference to pickleweed, glasswort, saltwort, or comparable vernacular appears in either transcript. Unlike iceplant, this absence carries a different evidentiary meaning. Pickleweed is a California native halophyte (a salt-tolerant plant) and would be expected to have been ecologically present in the low-lying ground fringing the Inner Bay that the Hancock survey traversed directly (Stations 20 through 25 run along the shore of the Inner Bay and the shoal-water margin of the Pacific Ocean). This report takes no position on the historical character of that fringing ground (its salinity, hydrological regime, or habitat classification) beyond what the surveyors themselves recorded; the point here is only that pickleweed is a halophyte that grows in low-lying saline ground generally, not a claim about the historical character of any specific area at Ballona. Its absence from the text reflects survey methodology, not ecological absence: a low, mat-forming groundcover is not a usable bearing object for line-running or re-survey purposes, and would not be expected to appear in this document genre regardless of its actual abundance on the ground. Pickleweed is, in fact, an especially poor candidate for a legal bearing object on any reading of nineteenth-century surveying convention: it lacks the permanence, height, and distinct visibility that made trees and large rocks useful reference points for future re-survey, so its absence from these records is unsurprising on structural grounds independent of any judgment about its actual historical abundance.

Accordingly, under this office's four-category evidentiary framework, the absence of iceplant is treated as Not Established. This label is used here in the sense of "no evidence of presence, and that absence is fully consistent with a documented later introduction" — not in the stronger sense of the record affirmatively contradicting presence, which would overstate what two boundary-monumentation documents can support. The absence of pickleweed, by contrast, is treated as Insufficient Evidence: the silence of this particular document class carries no probative weight on the question of pickleweed's historical presence or absence at Ballona. That classification rests on three compounding factors — (a) the document genre, which records only monument-worthy bearing objects rather than systematic vegetation; (b) pickleweed's low, mat-forming growth habit, which would not qualify it as a bearing object even had the surveyors wished to record it; and (c) the observable pattern that the surveyors did not name marsh-floor flora generally even in the same passages where they named riparian trees a few chains away, indicating the omission is systematic to the genre rather than specific to pickleweed.

IV. Invasive Species Baseline Cross-Check

The eleven species addressed in this section were identified for review as species of documented management concern at the Ballona Wetlands site; this list was supplied as the scope for this report rather than reproduced from a single named agency document. Where a species-specific rating exists, this office cross-referenced it independently against the California Invasive Plant Council (Cal-IPC) Inventory (see References [3], [6], and [7] below for the three species carrying confirmed Cal-IPC ratings). The review consisted of a complete examination of the text of both certified field-note transcripts for the eleven species' modern common and Latin names, together with documented nineteenth-century English or Spanish vernacular names where available and their obvious orthographic variants; no historical terminology was invented for purposes of this search.

Common Name	Latin Name	Vernacular Terms Searched	Result	Evidentiary Status
Black Mustard	Brassica nigra	"mustard," "sinapis"	No occurrence in either transcript	Not Established
Crown Daisy	Glebionis coronaria	"crown daisy," "chrysanthemum," "daisy"	No occurrence in either transcript	Not Established
Iceplant	Carpobrotus edulis	"ice plant," "Hottentot fig"	No occurrence in either transcript	Not Established
Pampas Grass	Cortaderia selloana	"pampas," "plume grass"	No occurrence in either transcript	Not Established
Ripgut Brome	Bromus diandrus	"brome," "ripgut," "cheat grass"	No occurrence in either transcript	Not Established
Castor Bean	Ricinus communis	"castor," "castor-oil plant," "ricinus"	No occurrence in either transcript	Not Established
Myoporum	Myoporum laetum	"myoporum," "ngaio"	No occurrence in either transcript	Not Established
Carnation Spurge	Euphorbia terracina	"spurge," "euphorbia"	No occurrence in either transcript	Not Established
Acacia	Acacia spp.	"acacia," "wattle"	No occurrence in either transcript	Not Established
Wild Radish	Raphanus sativus	"radish," "raphanus"	No occurrence in either transcript	Not Established

Common Name	Latin Name	Vernacular Terms Searched	Result	Evidentiary Status
Canary Island Palm	Phoenix canariensis	"palm," "phoenix"	No occurrence in either transcript	Not Established

Two of the eleven species, Black Mustard and Wild Radish, have the deepest documented California pedigree of the group, both being Old World Mediterranean species commonly associated with mission-era cattle grazing and agricultural introduction beginning in the 1770s, with Black Mustard's subsequent grassland dominance independently documented in the peer-reviewed literature. [5] Their absence from these particular records is accordingly a more meaningful negative finding than that of the remaining nine species, all of which are later horticultural, ornamental, or disturbance-following introductions with no plausible reason to appear in an 1858 or 1868 boundary description regardless of survey methodology.

That said, the same monument-selection bias discussed in Section I applies equally to Black Mustard and Wild Radish: both are low annual herbs, and the surveyors' consistent practice of selecting woody, long-lived bearing objects (trees, large rocks) over herbaceous ground vegetation would have excluded either species from the record regardless of how abundant it was on the ground in 1858 or 1868. This caveat is offered specifically to prevent the negative finding for these two species from being over-weighted in any downstream argument; it should be read as notable but not dispositive.

The remaining nine species — Crown Daisy, Iceplant, Pampas Grass, Ripgut Brome, Castor Bean, Myoporum, Carnation Spurge, Acacia, and Canary Island Palm — are each associated with later nineteenth- or twentieth-century ornamental, landscaping, or disturbance-following introduction, and their absence from this record is unremarkable.

V. Geographic Distance Analysis: Locating the Cottonwood and Willow References Relative to the Inner Bay and the Centinela Drainage

Persistent uncertainty surrounds the location of the cottonwood, willow, and related riparian references catalogued in Section II relative to Ballona's Inner Bay, and specifically whether these trees stood near the Inner Bay itself or considerably further inland toward the Centinela drainage. Both certified survey plats accompanying the field notes examined in this report — the 1858 Hancock plat of Rancho La Ballona and the 1868 Hansen plat of Rancho Sausal Redondo — speak to this question in two independent ways: the sequence and physiographic labeling of the survey itself, and the certified boundary-course table each plat carries. The sequence is addressed first, since it is the more direct historical observation; the course table then supplies quantitative confirmation.

V.1 The Survey Sequence: Bay Margin, Then Upland Table Land, Then the Cottonwood/Willow Locality

The Hancock plat's station progression directly documents this sequence. Stations 20 through 25 run along the shore of the Inner Bay; Station 24 sits at the inlet connecting to it — "inlet" being the field notes' own term, used here without characterizing its tidal regime, on which this report takes no position. From there the boundary proceeds inland through Stations 25 to 31, reaching Station 31 at the rancho's northwest corner. From Station 31 the survey climbs onto ground the plat itself labels "High rolling" / "Table Land" — a physiographic label the surveyor applies specifically to distinguish this upland ground from the Inner Bay just left behind — and proceeds through Stations 32 to 35 across that table land before reaching Station 36, the alamo/cottonwood point and its witness willow.

In short: the cottonwood and willow are not described while the survey is along the Inner Bay. They are described only after the survey has left the Inner Bay margin, climbed onto the ground Hancock labeled "High rolling" / "Table Land," and continued across it for a substantial distance to the rancho's northern apex. Put most precisely: the only cottonwood and willow references in either survey occur after the boundary leaves the Inner Bay environment and enters a distinctly different physiographic setting identified by the surveyor himself. This sequence, read directly off the certified plat and field notes, is the more direct and durable historical finding; the station-to-station distances in Section V.2 below are quantitative confirmation of it, not the primary basis for it.

V.2 Quantitative Confirmation: Station-to-Station Distances

The certified "Boundary Lines of Survey" table on the Hancock plat gives the following courses connecting the rancho's northwest corner (Station 31) to Station 36:

Course	Bearing	Distance (chains)	Notes
31 → 32	N.49°E	7.00	Station 31 is the rancho's northwest corner
32 → 33	N.57°01'E	142.91	Along the ridge the plat itself labels "High rolling Table Land"
33 → 34	N.59°E	106.64	Crosses a road and a section-line intersection
34 → 35	N.59½°E	52.00	
35 → 36	N.63°E	2.41	Station 36: the alamo/cottonwood point and its witness willow

Resolving these five certified courses into a single straight-line vector — that is, the net geometric displacement between the two stations, computed by summing each course's north and east components, not the distance actually walked along the boundary — places Station 36 approximately 310.81 chains (20,513 feet; 6,838 yards; 3.89 miles) from Station 31, the rancho's northwest corner. [13] Applying the same straight-line vector method back to Station 24, on the west shore of the inlet connecting to the Inner Bay, places Station 36 approximately 447.90 chains (29,562 feet; 9,854 yards; 5.60 miles) away by straight-line vector — a larger figure than the 31–36 distance because the certified boundary itself runs northwest up the open coast before turning back inland, rather than proceeding directly, so the path length actually surveyed (646.52 chains) is substantially longer than the straight-line vector between the two stations. [13] A third anchor is available for the same calculation: Station 25 is the first point the field notes themselves place "at high water mark on shoal water bay of the Pacific Ocean" — that is, the literal open-coast shoreline of Santa Monica Bay, as distinct from Station 24's position on the Inner Bay's inlet. Resolving the certified courses from Station 25 through Station 31 to Station 36 gives a straight-line vector of approximately 413.53 chains (27,293 feet; 9,098 yards; 5.17 miles). [13] By any of these three measures, the alamo/cottonwood point and its adjacent witness willow stood several miles from the Inner Bay's shore, at the rancho's northernmost boundary point rather than at the water's edge — consistent with, and quantifying, the sequence described in Section V.1. The witness willow itself is essentially co-located with the alamo/cottonwood stake, bearing south and east only 3.32 chains (219 feet; 73 yards) from it — the two trees mark, in effect, a single location.

V.3 A Qualitative Landscape Note, Correctly Distinguished from the Certified Course Table

The running field-note narrative includes a separate, qualitative description of the terrain traversed between the northwest corner and Station 33: high rolling table land extending "southeast a distance of about a mile" and terminating in low table land "bordering on the Ballona Bay, which bay has its northwest terminus at a distance of about 100 chains." The Hancock plat itself labels this same stretch of ridge "High rolling" / "Table Land," confirming that this sentence describes the view from the ridge rather than a certified boundary course in its own right. This qualitative aside (approximately 1.25 miles from the ridge to the Inner Bay's upper end) is treated here as corroborating context for the general remoteness of this high ground from the Inner Bay, and is not added arithmetically to the certified course distances in Section V.2 above, which stand on their own as exact, surveyor-recorded figures.

V.4 The Sausal Redondo Point of Beginning: Associated with Rancho Aguaje de la Centinella, Not the Inner Bay Shoreline

The Sausal Redondo willow's own witness-tree offset is small — it bears S 54½° W, distant 115 links (1.15 chains; 76 feet; 25 yards) from the point of beginning — but the significance of its location lies in the identity of the point of beginning itself, not the offset distance. That point is defined, on both the field-note transcript and the certified 1868 Hansen plat, as the northeast corner of Rancho Aguaje de la Centinella, a grant named directly for the Centinela spring. [14] The Hansen plat further shows this corner situated on the Rancho Aguaje de la Centinella side of the range of hills separating that grant from the Inner Bay, consistent with this willow's association with the Rancho Aguaje de la Centinella boundary rather than the Inner Bay shoreline.

V.5 Summary

The strongest finding of this section is not a mileage figure: it is that the original nineteenth-century survey sequence itself places the Rancho La Ballona alamo/cottonwood and its witness willow well after the survey left the Inner Bay shoreline, climbed onto the ground Hancock labeled "High rolling" / "Table Land," and proceeded to the rancho's northern apex — a sequence read directly off the certified plat's own stations and physiographic labels. The calculated distances in Section V.2 (on the order of four to five and a half miles by straight-line vector, depending on the reference station used) provide quantitative confirmation of that sequence rather than standing as the primary argument. The Sausal Redondo willow, independently, is associated with the Rancho Aguaje de la Centinella boundary rather than the Inner Bay shoreline, per the certified Hansen plat. This finding is classified Supported: it rests on the certified plats' own station sequence, physiographic labels, and surveyor-recorded bearings and distances rather than inference. This section establishes where these two recorded trees were encountered; it does not establish, and should not be read as establishing, that no cottonwood or willow ever stood closer to the Inner Bay — the surveys are silent on that question in either direction, for the same monument-selection reasons discussed in Section I.

VI. Evidentiary Caveats and Limitations

- Document genre bias: both transcripts are legal boundary-monumentation records, not vegetation surveys. A negative finding in this document class carries materially less evidentiary weight than a negative finding in a botanical survey, mission-era diary, or comparable vegetation-focused primary source, and should be cited accordingly in any downstream document that draws on this report.
- Transcription quality: both source documents are typewritten transcripts of manuscript field notes, evidently prepared for U.S. Surveyor-General's Office certification (the Rancho La Ballona transcript bears a February 17, 1882 certification by Theo. Wagner, U.S. Surveyor-General for California; the Rancho Sausal Redondo transcript bears a May 16, 1883 certification by W.H. Brown, U.S. Surveyor-General for California). Original manuscript field notes were not reviewed for this report.

- Latin binomial identifications below the genus level are probabilistic, based on known regional riparian and coastal flora rather than surveyor-supplied descriptive detail, and should be labeled as such wherever cited downstream.
- This report does not constitute a comprehensive floristic reconstruction of either rancho and should not be cited as establishing the absence of any species not specifically addressed herein.
- The distances calculated in Section V are derived from certified nineteenth-century bearing-and-chain course tables and are internally consistent straight-line and path-length figures; they have not been independently georeferenced against a modern coordinate system (e.g., GPS or GIS overlay), and should be understood as relative distances between named survey stations rather than absolute modern coordinates.
- Section V establishes where the specific cottonwood and willow references catalogued in Section II were encountered by the surveyors. It does not establish, and should not be cited as establishing, that no cottonwood or willow ever stood closer to the Inner Bay; consistent with the monument-selection reasoning in Section I, the surveys are silent on that question in either direction.

References

[1] Field Notes of the Final Survey of the Rancho La Ballona, Agustin Machado et al., Confirmee. Henry Hancock, Deputy Surveyor, under instructions of April 17, 1857. Survey commenced July 14, 1858; completed July 19, 1858. County Surveyor Volume G5, pages 298–314. Certified as a true transcript by Theo. Wagner, U.S. Surveyor-General for California, San Francisco, February 17, 1882.

[2] Field Notes of the Rancho Sausal Redondo, Antonio Ygnacio Abila, Confirmee, compiled from field notes of official surveys in accordance with the instructions of the General Land Office dated November 6, 1871; plat attributes underlying survey to George Hansen, Deputy Surveyor, 1868. County Surveyor Volume G8, pages 51–62. Certified as a true transcript by W.H. Brown, U.S. Surveyor-General for California, San Francisco, May 16, 1883.

[3] California Invasive Plant Council, Euphorbia terracina Profile, cal-ipc.org (Cal-IPC Rating: Limited).

[4] USDA Animal and Plant Health Inspection Service, Weed Risk Assessment for Euphorbia terracina L., aphis.usda.gov (citing Hrusa 2001 for established Los Angeles County populations; herbarium and field records at UCLA Botanic Garden, October 1967; El Segundo Dunes, May 1988; Solstice Canyon, March 2001).

[5] Bell, D., and C.H. Muller, "Dominance of California Annual Grasslands by Brassica nigra," The American Midland Naturalist 90, no. 2 (1973): 277–299 (peer-reviewed ecological study; cited for Black Mustard's documented capacity for rapid, dense stand formation in California grassland and disturbed-ground settings).

[6] Calflora, Brassica nigra Profile, calflora.org (Cal-IPC Rating: Moderate).

[7] California Invasive Plant Council, Carpobrotus edulis Profile, cal-ipc.org (Cal-IPC Rating: High).

[8] PlantRight, Carpobrotus edulis, plantright.org (introduction to California in the early 1900s for railroad soil stabilization).

[9] California Department of Fish and Wildlife, Ballona Wetlands Restoration Project, wildlife.ca.gov (official agency source; cited for current invasive-plant coverage and Black Mustard expansion rate, and oil-development and sediment-fill history).

[10] U.S. Environmental Protection Agency, Region 9, Ballona Creek Wetlands TMDLs for Sediment and Invasive Exotic Vegetation, archived at 19january2017snapshot.epa.gov (official federal source; cited for the 1930–1958 agricultural history of Areas B and C, 1920s–1950s oil and gas development, and 1930s USACE channelization of Ballona Creek, per Table 1 of that document).

[11] Biodiversity Atlas of Los Angeles, "Black Mustard, Brassica nigra," biodiversityla.org (cited for the documented Los Angeles-region bloom window of April through July and post-bloom die-back to dry, standing stalks).

[12] Sausalito Historical Society, "Sausalito or Saucelito?" (cited for the standard Spanish derivation sauce → sauzal → sauzalito, "willow" → "willow grove" → "small willow grove," and the documented s/z orthographic variation in this place-name family, applied here by analogy to "Sausal" in Rancho Sausal Redondo).

[13] Plat of the Ballona Rancho, finally confirmed to Agustin Machado et al. Henry Hancock, Deputy Surveyor, July 1858. Certified as a full, true, and correct copy of the original by J.W. Mandeville, U.S. Surveyor-General for California, San Francisco, October 2, 1863. Includes certified "Boundary Lines of Survey" course table (courses 1–38) cited in Section V for station-to-station bearings and chain distances. Huntington Library, ID 20895.

[14] Plat of the Rancho Sausal Redondo, finally confirmed to Antonio Ygnacio Abila, segregated from the adjoining public lands under instructions from the U.S. Surveyor-General. George Hansen, Deputy Surveyor, 1868. Bureau of Land Management, Sacramento, File 515_438. Cited in Section V for the location of the Rancho Aguaje de la Centinella northeast corner relative to the Inner Bay and the intervening range of hills.

Source Document Provenance

The two field-note transcripts were supplied to this office as scanned PDF images of the certified transcripts described in References [1] and [2] above. Neither transcript is presently known to this office to be deposited in a publicly accessible digital archive; both are held as archival scans for purposes of this report. The two certified plats described in References [13] and [14] were separately supplied to this office as digital image files (Huntington Library ID 20895 for the Hancock plat; Bureau of Land Management, Sacramento, File 515_438 for the Hansen plat) and were used solely to verify the certified boundary-course tables and station labels discussed in Section V; no images from either plat are reproduced in this report. Should any of these source materials later be deposited in a public archive (e.g., Internet Archive), this section should be updated in a subsequent revision to include the permanent access URL, consistent with this office's standard practice for other Ballona documentary work.

Appendix A: Supplemental Discussion — Modern Invasive-Species Context

The material in this appendix goes beyond the core historical-document findings addressed in Sections I through V of the main report. It expands on three species whose introduction chronology requires more individual discussion than the summary table in Section IV provides, and documents the site's modern disturbance history. This material is offered as useful supporting context rather than as historical evidence drawn from the 1858 or 1868 surveys themselves, and it is separated from the main report accordingly.

A.1 Individual Introduction-Chronology Discussion

Three of the eleven species reviewed in Section IV warrant individual discussion beyond the summary table there, because the reasoning behind their evidentiary classification is more involved than the blanket introduction-chronology argument that applies to the other eight: Carnation Spurge (Euphorbia terracina), Black Mustard (Brassica nigra), and Iceplant (Carpobrotus edulis). This section addresses each individually, since the reasons for their absence from the 1858 and 1868 survey record differ meaningfully between the three, and that difference matters for how each negative finding should be weighted.

Species	Survey Record	Basis for Absence / Notability	Evidentiary Status
Carnation Spurge	Not recorded	Absence consistent with introduction chronology. Earliest documented California herbarium record is a 1967 collection at the UCLA Botanic Garden; established, spreading populations in Los Angeles County are not documented until the late 1980s and after.	Not Established
Black Mustard	Not recorded	Absence is notable rather than expected, given the species' mission-era introduction (1769–1824) and its likely presence in the region by the 1850s. Plausible explanation offered below relates to survey timing and growth habit, not to true absence.	Contested-Unresolved
Iceplant	Not recorded	Absence consistent with introduction chronology. Documented sources place its introduction to California in the early 1900s for railroad- and highway-embankment erosion control, decades after both surveys.	Not Established

Carnation Spurge (Euphorbia terracina)

Carnation spurge is rated Limited impact by the California Invasive Plant Council. [3]

Its complete absence from both survey transcripts is fully consistent with, rather than contrary to, its documented introduction history. The earliest confirmed California occurrence identified in the literature is a 1967 herbarium collection at the UCLA Botanic Garden; [4] subsequent records document its establishment at the El Segundo Dunes

near Los Angeles International Airport by 1988 and at Solstice Canyon in the Santa Monica Mountains by 2001, with Los Angeles County populations still described as actively spreading as of that assessment. [4] This chronology places the species' earliest documented California presence more than a century after the 1858 Rancho La Ballona survey and roughly a century after the underlying 1868 Rancho Sausal Redondo survey. The surveys provide no evidence supporting the species' presence, and that absence is fully consistent with a documented introduction more than a century later; its absence from both records is accordingly classified Not Established.

Black Mustard (Brassica nigra)

Black mustard is rated Moderate impact by the California Invasive Plant Council. [6] Unlike carnation spurge and iceplant, it has a well-documented California presence predating both surveys by nearly a century: regional sources attribute its introduction to the Spanish mission period (1769–1824), a tradition consistent with its documented ecological dominance of California annual grasslands by the twentieth century. [5]

This makes its absence from both transcripts the most interpretively challenging negative finding in this report — not because the data point is dispositive, but because the silence itself is genuinely difficult to read. A plausible, unconfirmed explanation involves survey timing and growth habit: black mustard is a winter annual, regenerating with the rainy season and flowering roughly April through July in the Los Angeles region, after which stands die back and dry to brittle standing stalks by late summer. [6] [11] The Rancho La Ballona survey ran July 14–19, 1858, at or just past the tail end of this bloom window; by that point in the season a stand would typically be senescing or already dried to brittle stalks rather than presenting the distinctive yellow feature the species is known for earlier in spring, and, as a low annual herb, it would not have served as a boundary monument in any season regardless of bloom status. This explanation is offered as inference rather than fact, and the finding is labeled Contested-Unresolved accordingly: the present record cannot distinguish between black mustard being present and simply unrecorded for the reasons above, versus being present at meaningfully lower density in 1858 than under the twentieth-century disturbance regime documented in Appendix A.2. Existing floristic and land-use evidence does not resolve which account is correct, and this report does not attempt to adjudicate between them.

Iceplant (Carpobrotus edulis)

Iceplant is rated High impact by the California Invasive Plant Council. [7] Documented sources place its introduction to California in the early 1900s, initially for soil stabilization along railroad embankments and later along highway corridors, with subsequent widespread ornamental use. [8] This timeline places its introduction decades after both surveys, and its absence from the record is classified Not Established for the same reasons discussed in Section III above.

A.2 Disturbance History and Modern Invasive Proliferation

Several downstream sources supplied for this report's development identify specific anthropogenic disturbances at the Ballona site — historical farming, historical oil and gas drilling, and the channelization of Ballona Creek — as conditions that invasive plant species have subsequently exploited. This section verifies and dates those disturbances against official state and federal documentation, and connects the finding to the Black Mustard discussion in Section A.1 above.

Verified Disturbance History

- Agricultural conversion: lima beans and barley were cultivated in what are now Areas B and C of the Ballona Wetlands Ecological Reserve between approximately 1930 and 1958, an activity documented to have resulted in the filling of numerous natural channels. [10]

- Oil and gas development: fill was placed beginning in the 1920s to construct oil and gas drilling platforms and supporting access roads, with exploration and production activity continuing through the 1930s to 1950s. Oil development beneath the site predates the State of California's 2003 acquisition of the reserve, and decommissioning of remaining wells by the mineral-rights holder is ongoing as of the date of this report. [9] [10]
- Channelization: the U.S. Army Corps of Engineers straightened and channelized Ballona Creek within concrete levees in the 1930s, an action documented to have severely restricted water exchange between the site and the ocean and to have fundamentally altered site hydrology. [10]

Present-Day Rate of Invasive Proliferation

The California Department of Fish and Wildlife's own current assessment of the reserve (posted to its Ballona Wetlands Restoration Project page as of the date of this report, and not independently dated to a specific survey year within that source) states that roughly half of the site's vegetated area presently consists of invasive plants, and that this proportion continues to expand each year; CDFW specifically cites Black Mustard's areal coverage as having increased 360 percent over a six-year period as an illustrative example. This figure should be read as reflecting recent conditions rather than a fixed, timeless benchmark, and any downstream citation of it should note the retrieval date of this report. [9] This documented modern rate of expansion is directly relevant to the Black Mustard discussion in Section A.1: it confirms the species' capacity for rapid, aggressive spread once conditions favor it, and reinforces that its absence from the 1858 and 1868 survey record most plausibly reflects the surveyors' monument-only recording practice and the plant's summer die-back at the time of survey, discussed above, rather than any inherent limitation on the species' invasiveness. More precisely, a demonstrated capacity for 360 percent areal expansion within six years under modern disturbance conditions means the two ranchos' 1858 and 1868 silence on the species says very little about its actual pre-disturbance abundance at either site: a species capable of that rate of increase could plausibly have been present at low, unremarked density in 1858 and expanded substantially under the twentieth-century disturbance regime documented above, without requiring that it be absent, or even uncommon, at the time of either survey.

Document Version

v2.2 — July 26, 2026